

Peripheral (somatic and autonomic) nervous system and its dysfunction in patients with Crohn's disease

Abstract

The main aim of our study was to demonstrate the presence of peripheral somatic and autonomic neuropathy in patients with severe Crohn's disease on anti-TNF α biological therapy and to find risk factors pathophysiologically related to its development. We investigated 30 neurologically asymptomatic outpatients with severe Crohn's disease on biological treatment with anti-TNF α agents. In all probands, we performed an evaluation of anamnestic data, laboratory sampling, clinical examination aimed at detecting peripheral sensory-motor nerve dysfunction and autonomic nerve dysfunction (using the Ewing battery tests and spectral analysis of heart rate variability), Sudoscan and questionnaire investigation (quality of life questionnaire, peripheral sensory-motor neuropathy questionnaire and autonomic neuropathy questionnaire).

Peripheral sensory-motor neuropathy was present in 36.7 % patients. There were statistically significant associations between vibration perception test and age, duration of Crohn's disease and biologic therapy, body mass index, and Crohn's disease activity index. Statistically significant associations between temperature perception test and age and BMI were proved as well. Pathological result of Sudoscan test was present in 33.3 % patients. The decrease of total protein in a patient's serum below the physiological cut-off in the 6 months prior to measurement was associated with a pathological result of a Sudoscan. Peripheral autonomic neuropathy based on Ewing's battery of tests was present in 56.7 % of patients, no statistically significant risk factors were found. Our peripheral neuropathy questionnaire correlated with the results of the Sudoscan test and some tests of the clinical examination of peripheral sensory-motor nervous function (discriminatory contact perception test, temperature perception test).

This study demonstrated a relatively high prevalence of peripheral (esp. autonomic) neuropathy and identified some risk factors (esp. duration and activity of Crohn's disease, duration of biologic therapy administration and history of malnutrition) in the pathophysiology of the development of peripheral somatic neuropathy in neurologically asymptomatic patients with severe Crohn disease on anti-TNF α biological therapy.